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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,401	06/17/2005	Claire Divoux	034299-649	4611
7590		09/26/2007		
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			EXAMINER	
			AHMED, SHAMIM	
			ART UNIT	PAPER NUMBER
			1765	
			MAIL DATE	DELIVERY MODE
			09/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/539,401	<b>Applicant(s)</b> DIVOUX ET AL.	
	<b>Examiner</b> Shamim Ahmed	<b>Art Unit</b> 1765	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/28/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because at the end of the abstract page, there is a phrase "Fig.3A", which is unnecessary. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Regarding the claims 1 and 9, the phrase "characterized in that" renders the claim indefinite because it is unclear whether the limitation means the process steps are comprising or consisting and also phrase is not a common in U S practice.
5. Claims 7 and 8 recite the limitation "the latter" in line 3. There is insufficient antecedent basis for this limitation in the claim.
6. As to claims 7 and 8, it is not clear which part of the substrate surface is treated with the liquid to make the surface lipophilic and hydrophilic, respectively. So, no art rejection is provided for the claims 7 and 8.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Andersson et al (WO 02/41996).

In the following rejection, the device claim is not considered with the process steps, which is performed by the device or in another words, the process steps in the device claim is not given patentable weight.

Andersson discloses a device for confining liquid, wherein the liquid confinement means could be hydrophobic material and the device comprises a micro-machined substrate with fluid inlet duct (25) (see page 4, lines 27-37, page 5, lines 19-page 6, line 13).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky (5,490,034).

Zavracky illustrates a micro sensor with liquid confinement cavity on a substrate, wherein the substrate undergoes to a treatment process that forms at least areas in the substrate and the substrate is etched with liquid etchant for forming cavity (257), which resemble as the claimed liquid confinement area (col.10, lines 47-65 and figures 18A-18C).

In the wet etching, it would have been obvious to immerse the substrate into the wet etchant, which is conventional in the art.

Zavracky teaches that the vapor pressure inside the cavity forces the diaphragm away from the substrate. Care must be taken not to overpressurize the structures. The process continues until all liquid has been vaporized and the vapor has escaped from beneath the diaphragms through the etching ports

(Col.13, lines 28-38), which reads on the claimed limitation of lowering the pressure above the liquid above the liquid from atmospheric pressure to a pressure less than the saturation vapor pressure.

12. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavracky (5,490,034) as applied to claims 1-4 above, and further in view of Sundberg et al (2002/0185377 A1).

Zavracky discusses above in the paragraph 11 but remain silent with the treatment process of the substrate surface that includes the deposition of a polytetrafluoroethylene layer on the surface area.

However, Sundberg et al disclose a microfluidic device for facilitating supplying fluid in which the substrate surface is coated with hydrophobic coating 58 (e.g., a polytetrafluoroethylene, such as Teflon™, helps prevent smearing of fluid 50 over lower surface 42 of substrate 32, thereby avoiding cross-contamination of fluid samples. (see paragraph 0043).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to modify Zavracky's process with the teaching of Sundberg et al for reducing cross-contamination during the fluid handling as suggested by Sundberg et al.

### **Conclusion**

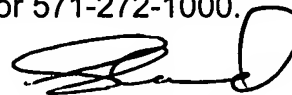
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ho (7189,360) illustrates a liquid confinement device in which the substrate does not go through any etching process to form a cavity in the substrate (figure 15a).

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shamim Ahmed  
Primary Examiner  
Art Unit 1765

SA  
September 22, 2007